

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 41

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte KEN TAKAHASHI et al

Appeal No. 96-1530
Application No. 07/767,488¹

HEARD: January 13, 1999

Before METZ, JOHN D. SMITH and PAK, Administrative Patent Judges.

PAK, Administrative Patent Judge.

DECISION ON APPEAL

Takahashi et al. (appellants) appeal from the examiner's refusal to allow claims 8 through 14, 16 and 17, which are all of the claims pending in the application. Claims 8 through 12, 16 and 17 were amended subsequent to the final rejection.

¹ Application for patent filed September 30, 1991. According to appellants, the application is a division of 07/211,041, filed June 24, 1988, now U.S. Patent 5,093,314.

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Claim 8 is representative of the subject matter on appeal and reads as follows:

8. A method of manufacturing a superconducting oxide wire, comprising the steps of:

preparing a pipe made of a metal extending in the direction of a longitudinal axis thereof;

providing a superconducting oxide powder material which contains superconducting oxide particles having a grain size of about 10 to 60 Fm and having a perovskite crystal structure having a C face and a C axis and which contains more than 50 vol% of plate-shaped particles of which a length in the direction of the C face is greater than another length in the direction of the C axis;

filling said pipe with said superconducting oxide material thereby preparing a composite conductive body;

forming said composite conductive body into a wire by subjecting said composite conductive body to at least wire forming working in the direction of the longitudinal axis so that the C faces of most of the plateshaped particles are directed toward the longitudinal axis of the pipe; and subjecting the thus formed composite conductive body to heat treatment thereby sintering the superconducting oxide powder material.

The references of record relied upon by the examiner are:

Jin et al. (Jin)	4,952,554	Aug. 28,
1990		

Takekawa et al., Japanese Journal of Applied Physics, Vol. 26,
No. 5, May 1987, pp. L851-L853 (hereinafter referred to as
"Takekawa").

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Claims 8 through 14, 16 and 17 stand rejected under 35 U.S.C. § 103 as unpatentable over the combined teachings of Jin and Takekawa. We reverse.

In prior art processes, plate-shape superconducting oxide particles are produced by heat treating superconducting oxide powder to, for example, about 900°C to 1050°C for a prolonged period. See specification, page 5, lines 16-28, page 8, lines 21 to page 9, line 3 and pages 12-29, examples 1 through 8 in conjunction with Takekawa, L852. The superconducting-plate-shaped particles resulting from this heat treatment, however, "do not have any particular preferred orientation and are oriented in random directions." See specification, page 7, lines 15-18. The subject matter on appeal is directed to a method for manufacturing a superconducting oxide wire, which method allows **most** of the plate-shaped superconducting oxide particles (which constitutes 50% or more of the superconducting powder) to have a particular orientation in the wire. See claim 8 in conjunction with, e.g., specification, page 7. This particular orientation is described as having the C faces of most of the plate-shaped superconducting particles facing toward the longitudinal axis

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of the wire. See claim 8 in conjunction with page 7. According to page 7, lines 2-4, of the specification, such an orientation is desirable because "electrons flows more easily in the direction of the C face than in the oxide powder to, for example, in the direction of the C axis which is normal to the C face."

The examiner's rejection is predicated on the ground that the claimed orientation will inherently follow upon substituting the plate-like particles described in Takekawa for the superconducting powder used in the process of Jin. See Answer, page 3. As acknowledged by the examiner, however, the Jin reference does not recognize the importance of obtaining the claimed orientation, nor does it recognize the importance of placing the plate-like particles in a tube prior to drawing the tube to obtain the claimed orientation. See the Jin reference in its entirety. Although the Takekawa reference teaches plate-like crystal particles having lower electrical resistivity than a rectangular crystal, thus possibly implying superconducting properties (L853, Figure 4), it does acknowledge (L851) that:

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The limited crystal size prevented the thorough measurements of the physical properties of this interesting material. Thus it is necessary to obtain single crystals of much larger size for further understanding of the superconductivity phenomenon of this phase as well as for practical use.

Also, nowhere does it teach or suggest that the plate-like particles are useful for producing superconductive oxide wires of the type described in the Jin reference. Nor does it teach or suggest the importance of orienting the plate-like particles in the claimed manner. See page L852, Figure 2(b) showing the plate-like and rectangular particles in random orientation. On this record, we agree with appellants that the examiner has not supplied sufficient facts to establish a ***prima facie*** case of obviousness within the meaning of 35 U.S.C. § 103.

Accordingly, we reverse the examiner's decision rejecting claims 8 through 14, 16 and 17 under 35 U.S.C. § 103.

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REVERSED

ANDREW H. METZ)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
JOHN D. SMITH)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
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APJ METZ

APJ SMITH, JOHN

DECISION: REVERSED
Send Reference(s): Yes No
or Translation (s)
Panel Change: Yes No
Index Sheet-2901 Rejection(s): 103

Prepared: September 27, 1999

Draft Final

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